No. 8100058

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Ferry-Morse Seed Company

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

TOMATO

'Liberator'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington, D.C. *this* 23rd *day of* September *in the year of our Lord one thousand nine hundred and* eighty-two

Attest:

Kenneth A. [illegible]

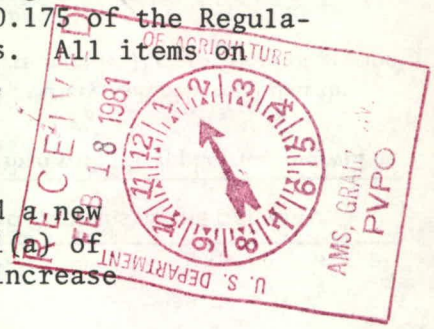
Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

John R Block

Secretary of Agriculture

INSTRUCTIONS

GENERAL: Send an original copy of the application and exhibits, at least 2,500 viable seeds, and $500 fee ($250 filing fee and $250 examination fee) to U.S. Dept. of Agriculture, Agricultural Marketing Service, Livestock, Poultry, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (See section 180.175 of the Regulations and Rules of Practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.



ITEM

5 Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.

13a Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability.

13b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties: (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.

13c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.

13d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as, plant habit, plant color, disease resistance, etc.

14a If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "NO," he may change his choice. (See section 180.16 of the Regulations and Rules of Practice.)

15a See section 42 of the Plant Variety Protection Act and section 180.7 of the Regulations and Rules of Practice.

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

FORM APPROVED
OMB NO. 40-R3822

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

FOR OFFICIAL USE ONLY

PV NUMBER 8100058

1a. TEMPORARY DESIGNATION OF VARIETY: E7200

1b. VARIETY NAME: LIBERATOR

2. KIND NAME: Tomato

3. GENUS AND SPECIES NAME: Lycopersicon lycopersicum (1) Karst. ex Farw.

4. FAMILY NAME (BOTANICAL): Solanaceae

5. DATE OF DETERMINATION: December 16, 1977

FILING DATE: 2/20/81

TIME: 3:00 A.M. (P.M.)

FEE RECEIVED: $ 500.00 / $ 250.00

DATE: 2/20/81 / 8/9/82

6. NAME OF APPLICANT(S): FERRY-MORSE SEED COMPANY
Dr. Courtland G. Nichols
Breeder

7. ADDRESS (*Street and No. or R.F.D. No., City, State, and ZIP Code*): 111 Ferry-Morse Way
Drawer 7274
Mountain View, California 94042

8. TELEPHONE AREA CODE AND NUMBER: (415) 408-637-967-6973 7461

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (*Corporation, partnership, association, etc.*): CORPORATION

10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION: CALIFORNIA

11. DATE OF INCORPORATION: 7 April 1979 cvb

12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS: ~~Mr. D. V. Brondyke, Executive Vice President~~ Dr. David J. Thompson
Ferry-Morse Seed Company P.O. Box 1048; 2191 San Juan Rd., San Juan Bautista CA 95045
~~111 Ferry-Morse Way, Drawer 7274; Mountain View, California 94042~~

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- [X] 13A. Exhibit A, Origin and Breeding History of the Variety (*See Section 52 of the Plant Variety Protection Act.*) cvb per letter of 5/7/82 - Brondyke
- [X] 13B. Exhibit B, Novelty Statement.
- [X] 13C. Exhibit C, Objective Description of the Variety (*Request form from Plant Variety Protection Office.*) cvb
- [X] 13D. Exhibit D, Additional Description of the Variety.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (*See Section 83(a). (If "Yes," answer 14B and 14C below.)*) [ ] YES [X] NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? [ ] YES [X] NO

14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED? [ ] FOUNDATION [ ] REGISTERED [ ] CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? [ ] YES [X] NO (*If "Yes," give name of countries and dates.*)

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? [ ] YES [X] NO (*If "Yes," give name of countries and dates.*)

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? [X] YES [ ] NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

6 Feb. 1981
(DATE)

FERRY-MORSE SEED COMPANY
D V Brondyke
(SIGNATURE OF APPLICANT)
D. V. Brondyke, Executive V.P.

(DATE)

(SIGNATURE OF APPLICANT)

1

FORM GR-470 (1-78)

January 8, 1981

8100058

'LIBERATOR' =

VARIETY: E7200; formerly (Florida MH-1G x 10C-X528MsB3)MsC4AMs

Exhibit A: Origin and Breeding History of the Variety

E7200 was selected as a single plant selection, using the pedigree method of breeding, from a cross made in February of 1973 between a uniform ripening selection out of Florida 2432 jointless, designated Florida MH-1G, used as seed parent and a pedigreed line 10C-X528MsB3 as the pollen parent. 10C-X528MsB3 is an F_4 selection from a cross between Pakmor and Florida 407 jointless.

F_1 plants had light green shouldered, medium sized fruit with jointless stems. The fruit was early maturing with good color and firmness. F_2 seeds from several F_1 plants were harvested from row #3544 in October of 1973 at San Juan Bautista, California.

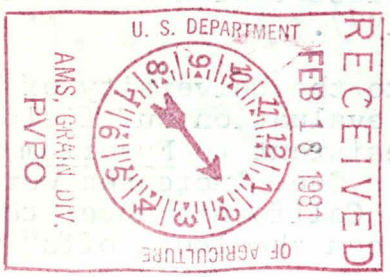
F_2 plants in 1974 had good crops of early maturing, firm, fairly smooth, medium large, fruit all with jointless stems. Segregation for green fruit color was present. F_3 seed was saved from 9 selected plants in row #20148 in October of 1974 at San Juan Bautista, California.

F_3 plant progenies of 9 single plant selections were noted in 1975, and the third row had the best combination of fruit size, set, smoothness, and firmness. Four selections were taken from this row #34536 in October of 1975.

In 1976, the progeny from selection #4 looked very good. Quality tests indicated low pH of 4.00 and low soluble solids of 4.1%. The plants were rated resistant to Alternaria Stem Canker and Verticillium Wilt in the field. Some shoulder cracking was noted after a 3 inch rain. Four selections were taken from this row #43386 in October of 1976.

In 1977, the progeny from selection #1 looked very good to excellent. All 40 plants were uniform ripening types with no segregation for green shoulder types. The combination of good smoothness, firmness, fruit size, and uniform ripening in a jointless tomato with Verticillium Wilt resistance was very unusual. F_6 seeds massed from 10 selected plants were harvested from this row #51608 in October of 1977.

In 1978, the F_6 seeds were sampled to the University of Florida at Bradenton for disease resistance evaluation and field adaptability. It was found to be resistant to Fusarium race 1 & 2 and Stemphylium Gray Leafspot. Seed increases were made in Los Mochis, Mexico and Hollister, California under the designation E7200. No jointed or green shoulder "offs" were found in populations of 5,000 plants.


U. S. DEPARTMENT
OF AGRICULTURE
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AMS, GRAIN DIV.
PVPO

4. LEAF (Mature leaf under the 1st to 3rd inflorescences) (continued):

[1] Surface of major leaflets: 1 = smooth 2 = rugose (bumpy or veiny)
[2] Leaflet: 1 = normal 2 = slightly wilty 3 = wilty "moderate" crb per Court Nichols.
[2] Shape of major leaflets: 1 = broadly ovate 2 = ovate to lanceolate
3 = slender and lanceolate, tapered to a point
[2] Pubescence or hairiness: 1 = smooth 2 = normal 3 = wooly
[2] Color of leaflets: 1 = light green (Earlinorth) 2 = medium green ( )
3 = gray-green ( ) 4 = dark green (UC82)
[2] Color of leaf on check variety (same scale): Variety Burgis

5. INFLORESCENCE:

[2] Type: 1 = simple (racemose) 2 = forked (2 major axes) 3 = compound (much branche
[1] No. of flowers setting fruit (in 2nd or 3rd inflorescence):
1 = 1-4, 2 = 4-8, 3 = 8-12, 4 = 12 or more

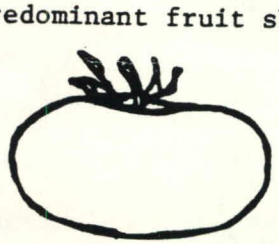
6. FLOWER:

[1] Calyx: 1 = normal (lobes awl-shaped) 2 = macrocalyx (lobes large, leaflike)
3 = fleshy
[1] Flower color: 1 = yellow 2 = old gold 3 = white or tan
[1] Style exsertion: 1 = included 2 = even with stamens 3 = exserted
[1] Style pubescence: 1 = absent 2 = sparse 3 = dense
[1] Anthers: 1 = all fused into tube 2 = separating into 2 or more groups at anthesis
[1] Fasciation (1st flower of 2nd or 3rd infloresence):
1 = absent 2 = occasionally present 3 = frequently present

7. FRUIT (3rd fruit of 2nd or 3rd cluster):

[2] Abscission layer: 1 = present (pedicellate) 2 = absent (jointless)
[ ][ ] mm. Length of pedicel (from abscission layer or joint to calyx attachment)
[8] Mature fruit: Maximum diameter:
1 = small cherry (< 20 mm) 2 = large cherry (20-35 mm)
3 = cocktail (35-48 mm) 4 = U.S. extra small (48-54 mm)
5 = U.S. small (54-58 mm) 6 = U.S. medium (58-64 mm)
7 = U.S. large (64-73 mm) 8 = U.S. extra large (73-88 mm)
9 = U.S. maximum large (88-100 mm) 10 = U.S. maximum large (> 100 mm)
[7] Maximum diameter of check variety, same classes as above
(Specify name) Burgis
[2][2][0] g Fruit weight [1][7][4] g Check variety Burgis

[4] Predominant fruit shape: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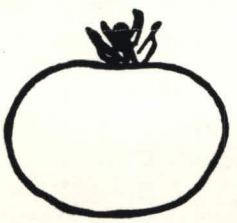
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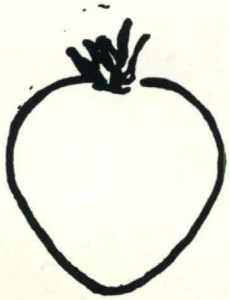
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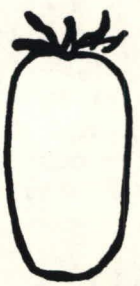
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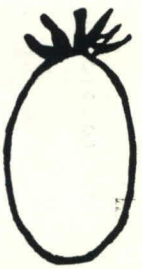
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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, GRAIN, AND SEED DIVISION
BELTSVILLE, MARYLAND 20705

OBJECTIVE DESCRIPTION OF VARIETY
TOMATO (Lycopersicon esculentum Mill.)

Name of applicant	Temporary designation	Variety Name
Ferry-Morse Seed Co.	E7200	Liberator

Address (Street and No. or R.F.D. No., City, State, Zip)
111 Ferry-Morse Way
Drawer 7274
Mt. View, CA. 94042

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PVPO NUMBER

Choose responses which best represent your variety in the characters below. When a single quantitative value is requested (e.g. fruit weight), your answer should be the mean of an adequate, unbiased sample of plants. The applicant variety should be compared with at least one well-known standard check variety of the same type, and grown in the same trial(s). The characters on this form should be described from plants grown under normal conditions of culture for the variety. Indicate by a check whether trial data are from greenhouse ____ or field X plantings. Trials direct-seeded X or transplanted ____. Give locations and dates of trials San Juan Bautista, CA. seeded 4/28/81. Use leading zeroes when necessary (e.g. 09 or 081, etc.). Complete this form as fully as possible for best characterization of the variety.

1. SEEDLING: (2-15 cm, well-illuminated)

[2] Anthocyanin in hypocotyl: 1 = absent 2 = present
[1] Cotyledon: 1 = normal 2 = giant

2. MATURE PLANT:

[3] Growth: 1 = indeterminate 2 = semi-determinate 3 = determinate
[2] Size (compared to others of its growth type): 1 = small 2 = medium 3 = large
[2] Habit: 1 = sprawling (decumbent) 2 = semi-erect 3 = erect
[2] Foliage cover: 1 = light 2 = moderate 3 = heavy

3. STEM:

[2] Internode length (between the 1st and 4th inflorescences):
1 = short ( ) 2 = intermediate ( ) 3 = long ( )
[2] Branching: 1 = sparse (Brehm's Solid Red) 2 = intermediate ( )
3 = profuse (UC82)
[2] Branching at cotyledonary or first leafy node: 1 = present 2 = absent
[2] Pubescence: 1 = smooth (no long hairs) 2 = sparsely hairy (scattered long hairs)
3 = densely hairy or canescent
[2] No. of nodes below the first inflorescence:
1 = few ( ) 2 = intermediate ( ) 3 = many ( )
[2] No. of nodes (leaves) between inflorescences
[2] Thickness: 1 = slender, weak 2 = medium thickness 3 = thick, stiff

4. LEAF (Mature leaf under the 1st to 3rd inflorescence):

[1] Type: 1 = tomato 2 = potato
[2] Division: 1 = once-pinnate 2 = intermediate (pinnate-bipinnate)
3 = bipinnate, many small leaflets with the large ones
[ ] Attitude: 1 = semi-erect 2 = horizontal 3 = drooping
[2] Leaflet blade: 1 = thin 2 = medium 3 = thick
[2] Bases of major leaflets: 1 = even 2 = oblique (the sides offset on petiole)
[3] Margins of major leaflets: 1 = nearly entire 2 = shallowly toothed or scalloped
3 = deeply toothed or cut, especially towards base
[2] Marginal rolling: 1 = absent 2 = present

8. **PHENOLOGY (Growing degree days, or heat units on a base temperature of 51° F are preferable--but you may report either growing degree days or calendar days. Circle either "days" or calendar days, or "heat units" for growing degree days) (Continued):**

Days/heat units from seed/transplant (indicate which) to once-over harvest, if applicable:

[ ][ ][ ] days, Application variety

[ ][ ][ ] days, Check variety No. 1 _____
[ ][ ][ ] days, Check variety No. 2 _____

Days/heat units from breaker to full-ripe stage:

[ ][ ] days, Application variety

[ ][ ][ ] days, Check variety No. 1 _____
[ ][ ][ ] days, Check variety No. 2 _____

Shelf life of ripe fruit:

[ ][ ] days, Application variety

[ ][ ] days, Check variety No. 1 _____
[ ][ ] days, Check variety No. 2 _____

[3] Fruiting season: 1 = long ('Marglobe') 2 = medium ('Westover')
3 = short, concentrated ('VF 145') 4 = very concentrated ('UC 82')

[2] Relative maturity: 1 = early 2 = medium early 3 = medium
4 = medium late 5 = late

9. ADAPTATION (if more than one category applies, list all in rank order):

[1][ ] Culture: 1 = field 2 = greenhouse
[1][ ] 1 = unstaked 2 = staked or trellised
[2][ ][ ] Principal use(s): 1 = home garden 2 = fresh market
3 = processing 4 = other _____

[ ][2] Machine harvest: 1 = not adapted 2 = adapted
[8][2] Recommended region: 1 = Northeast/Midatlantic 2 = Southeast
[9][3] 3 = Midwest/Great Lakes 4 = South-central
5 = Great Plains 6 = Intermountain West
7 = Northwest 8 = Central California
9 = Southwest/So. Calififfornia 10 = General
11 = Other (specify) _____

[4] Growing season temperature: 1 = cool 2 = normal warm 3 = hot 4 = general
[3] Growing season humidity: 1 = humid 2 = semi-arid 3 = general
[1] Soils: 1 = mineral 2 = organic 3 = general

10. RESISTANCE OR TOLERANCE TO ENVIRONMENTAL STRESS:

[2] High temperature fruit set (subjective evaluation based on fruit set at temperatures that normally inhibit set in area of evaluation):
1 = poor 2 = fair 3 = good ('Summertime') AREA Fresno, CA

[ ] Low temperature fruit set (subjective evaluation based on fruit set at low temperatures that normally inhibit germination): 1 = poor 2 = fair 3 = good ('Veecrop')
AREA _____

[ ] Low temperature seed germination: 1 = poor ( ) 2 = fair ( )
3 = good ( )

11. RESISTANCE TO FRUIT DISORDERS (Use code: 0=unknown, 1=susceptible, 2=resistant):

[0] Blossom end rot
[2] Catface
[2] Cracking, concentric
[2] Gold fleck
[0] Bursting
[2] Cracking, radial
[2] Fruit pox
[2] Graywall or blotchy ripening

7. FRUIT (3rd fruit of 2nd or 3rd cluster):

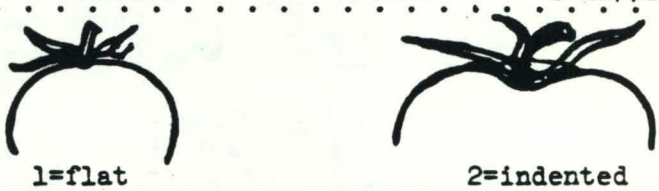
[1] Shape of transverse section:

1=round 2=flattened 3=angular 4=irregular

[2] Shape of blossom end:

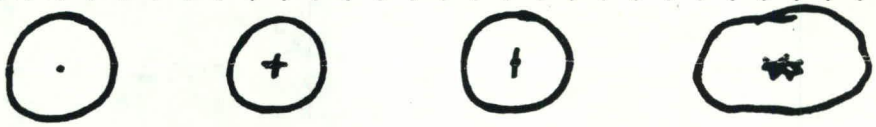
1=indented 2=flat 3=nipped 4=tapered

[2] Shape of stem end:



1=flat 2=indented

[1] Shape of pistil scar:



1=dot 2=stellate 3=linear 4=irregular

[1] Fruit surface: 1 = smooth 2 = slightly fasciated 3 = moderately fasciated

[1] Fruit color (mature-green stage):
1 = light green ('Lanai', VF145-F5) 2 = Lt. gray-green ( )
3 = apple green ('Heinz 1439 VF') 4 = dark green ( )

[2] Fruit pattern (mature-green stage): 1 = green shouldered 2 = uniform green

[5] Mature fruit color (full-ripe): 1 = white 2 = yellow 3 = tangerine
4 = pink 5 = red 6 = brownish-red
7 = greenish 8 = other (specify) _____

[2] Flesh color (full-ripe): 1 = yellow 2 = red 3 = crimson 4 = other _____

[1] Epidermis: 1 = normal 2 = easy-peel

[2] Epidermis color: 1 = colorless 2 = yellow

[2] Epidermis thickness: 1 = thin 2 = average 3 = thick

[3] Thickness of pericarp: 1 = thin (< 3 mm) 2 = medium (3-6 mm) 3 = thick (> 6 mm)

[3] Thickness of pericarp of check variety (same scale) Variety: Burgis

[2] Core size: 1 = coreless 2 = small 3 = medium 4 = large

[1] Core shape: 1 = solid, unbranched 2 = branched

[1] Core texture: 1 = soft, edible 2 = tough or fibrous

[2] Stem scar size: 1 = small ( ) 2 = medium ( ) 3 = large ( )

[3] No. of locules: 1 = two 2 = three and four 3 = five or more

[5] Fruit firmness[1] (minimum table-ripe):
1 = extra-soft ('Gardener') 2 = very soft ('Valiant') 3 = soft ('Campbell 28')
4 = fairly firm ('Tropic') 5 = firm ('MH-1') 6 = very firm ('UC-82')

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8. PHENOLOGY (Growing degree days, or heat units on a base temperature of 51° F are preferable--but you may report either growing degree days or calendar days. Circle either "days" for calendar days, or "heat units" for growing degree days):

Days/heat units from seed to first open flower:
[ ][ ] days, Application variety
[ ][ ] days, Check variety No. 1 _____
[ ][ ] days, Check variety No. 2 _____

Days/heat units from seed/transplant (indicate which) to first ripe fruit:
[ ][ ][ ] days, Application variety
[ ][ ][ ] days, Check variety No. 1 _____
[ ][ ][ ] days, Check variety No. 2 _____

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[1]For definitions of these subjective terms see Kader & Morris (1976) In: Proc. 2nd Tomato Quality Workshop.

12. DISEASE AND PEST REACTION (Use code: 0=not tested, 1=susceptible, 2=resistant) If claim of novelty is based wholly or in part upon disease resistance, trial data should be appended (Exhibit D) and should include date and location of trial(s), method of testing, reaction of application variety, and reaction of check varieties (identified by name).

Viral Diseases:

[0] Cucumber mosaic
[1] Tobacco mosaic, Race 0
[0] Tobacco mosaic, Race 2^2 (Tm 2^2)
[0] Other (specify) _____

[0] Curly top
[0] Tobacco mosaic, Race 1 (Tm 1)
[0] Tomato spotted wilt

[0] Potato-Y virus
[0] Tobacco mosaic, Race 2 (Tm 2)
[0] Tomato yellows

Bacterial Diseases:

[0] Bacterial canker (Corynebacterium michiganense)
[0] Bacterial speck (Pseudomonas tomato)
[0] Bacterial wilt (Pseudomonas solanacearum)
[0] Other bacterial disease (specify) _____

[0] Bacterial soft rot (Erwinia carotovora)
[0] Bacterial spot (Xanthomonas vesicatorium)

Fungal Diseases:

[0] Anthracnose (Colletotrichum spp.)
[0] Brown root rot or corky root (Pyrenochaeta lycopersici)
[0] Early blight (Alternaria solani) defoliation
[2] Fusarium wilt, Race 2 (F. oxysporum f. lycopersici)
[0] Late blight, Race 0 (Phytophthora infestans)
[0] Leaf mold, Race 1 (Cladosporium fulvum)
[0] Leaf mold, Race 3 (C. fulvum)
[0] Nailhead spot (Alternaria tomato)
[0] Rhizoctonia soil rot (R. solani)
[0] Southern blight (Sclerotium rolfsii)
[2] Verticillium wilt, Race 1 (V. albo-atrum)
[2] Other fungal diseases (specify) Alternaria Stem Canker (Alternaria alternata f. lycopersici

[0] Botrytis rot or mold (B. cinerea)
[0] Collar rot or stem canker (Alternaria solani)
[2] Fusarium wilt, Race 1 (F. oxysporum f. lycopersic
[2] Gray leaf spot (Stemphylium solani, S. floridanu
[0] Late blight, Race 1 (Phytophthora infestans)
[0] Leaf mold, Race 2 (C. fulvum)
[0] Leaf mold, other races (specify) _____
[0] Phytophthora root rot (P. parasitica)
[0] Septoria leaf blight (Septoria spp.)
[0] Target leafspot (Corynespora casiicola)
[0] Verticillium wilt, Race 2 (V. albo-atrum)

Insect and Pests:

[0] Colorado potato beetle (Leptinotarsa decemlineata)
[1] Root knot nematode (Meloidogyne incognita)
[0] Spider mites (Tetranychus spp.)
[0] Sugar beet army worm (Spodopfora exigua)
[0] Tobacco flea beetle (Epitrix hirtipennis)
[0] Tomato hornworm (Manduca quinquemaculata)
[0] Tomato fruitworm (Heliothis zea)
[0] Whitefly (Trialeurodes vaporariorum)
[ ] Other (specify) _____

Pollutants:

[0] Ozone [0] Sulfur dioxide [ ] Other (specify) _____

REFERENCES

Anonymous, 1976. All About Tomatoes. Ortho Books, Chevron Chemical Co., San Francisco. In three volumes: Midwest/Northeast Edition, West Edition, and South Edition.

Ware, G. W. & J. P. McCollum, 1968. Producing Vegetable Crops. The Interstate Printer & Publishers, Inc., Danville, Illinois. (Chapter 30, pp. 451-473, "Tomatoes".)

Webb, R. E., T. H. Barksdale, & A. K. Stoner, 1973, "Tomatoes" pp. 344-361 In: Nelson, R.R. (Ed.) Breeding Plants for Disease Resistance. Pennsylvania State University Press, University Park

Young, P. A. & J. W. MacArthur, 1947. Horticultural characters of tomatoes. Bull. Texas Agric. Exper. Station No. 698.


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OCT 5 1981
U.S. DEPARTMENT
AMS, LEGIS DIV
PVPO

Trials in California and Florida during 1978, 1979 & 1980 showed E7200 to be well adapted and commercially desirable for grower-shippers. Lab quality analyses continued to show low pH's of 4.20 and 4.21 and low soluble solids of 4.2 and 3.9%. The vine is a medium sized determinate type with somewhat open partially curled foliage.


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VARIETY: Liberator (E7200)

EXHIBIT A: Supplement

Seed increases for Liberator were made in 1978, 1979, and 1981. These increases ranged from 1 to 10 acres and were found to be very uniform and stable with no obvious off type plants or fruit.

July 7, 1982

VARIETY: Liberator (E7200)

EXHIBIT B: Novelty Statement

Liberator is a medium early, firm, medium large, deep globe, market tomato with jointless pedicel and uniform green immature fruit. The vine is a medium sized determinate type with somewhat open, partially curled foliage. It carries dominant genes for resistance to Verticillium wilt strain 1, Fusarium wilt race 1, Fusarium wilt race 2, Stemphylium gray leafspot, and Alternaria stem canker. Red ripe fruit has unusually low pH (4.00 to 4.20) and unusually low soluble solids (3.9 to 4.2).

Liberator most closely resembles Burgis and Florida 2432 since they are both jointless market tomatoes with uniform green fruit. Florida 2432 lacks resistance to Verticillium wilt strain 1 and both Burgis and Florida 2432 have normal (non-curly or wilty) foliage compared to the partially curly foliage of Liberator. Under field conditions as San Juan Bautista, California, the fruit of Burgis were generally smaller and softer than Liberator and had distinctly higher pH and soluble solids than Liberator. Burgis fruit had a sweet-sour taste whereas Liberator fruit is sour with almost no sweetness. Three other jointless market varieties Florida MH-1, Flora Dade and Hayslip are all green shoulder types and have normal foliage instead of the curly foliage of Liberator. Flora Dade and Hayslip are resistant to Verticillium wilt but Florida MH-1 is not.

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VARIETY: Liberator (formerly E7200)

EXHIBIT D: Additional Description of the Variety

The vine is a medium sized, determinate type, similar to Jackpot but with less fruit exposure and less leaf curl. The vine is slightly smaller than Burgis with more fruit exposure and more leaf curl as the season progresses. Flora-Dade and Hayslip have much less fruit exposure and no leaf curl. The foliage color is intermediate between Jackpot and Burgis and definitely lighter than Flora-Dade or Hayslip.

The mature green fruit has the genotype uu similar to Jackpot with no darker shoulder coloration at all. Burgis has a slight blush of darker green shoulder coloration and Flora-Dade and Hayslip have dark green shoulders. Liberator ripe fruit is slightly firmer than Jackpot, Flora-Dade and Hayslip and distinctly firmer than Burgis. The ripe fruit of Liberator has distinctly lower pH (4.20) than Jackpot (4.34), Burgis (4.29) Flora-Dade (4.28), or Hayslip (4.33). The soluble solids of Liberator ripe fruit is distinctly lower (4.0) than Jackpot (4.6), Burgis (4.8) or Hayslip (4.6).

The mature fruit size of Liberator is intermediate between Jackpot and Burgis. Liberator has many six-loculed fruit similar to Jackpot whereas Burgis has mostly four to five-loculed fruit.

25 September, 1981


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OCT 15 1981
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AMS, LPGES DIV.
PYPO

ASSIGNMENT OF INTELLECTUAL PROPERTY

WHEREAS, HARRIS MORAN SEED COMPANY, a corporation duly organized and existing under the laws of the State of Maryland, having its principal place of business at 4511 Willow Road, Suite 3, Pleasanton, California 94588 ("**Assignor**"), has, pursuant to that certain Bill of Sale and Assignment dated as of June 30, 1997, transferred to FERRY-MORSE SEED COMPANY (CALIFORNIA), a corporation duly organized and existing under the laws of the State of California, having its principal place of business at 555 Codoni Avenue, P.O. Box 4938, Modesto, California 95352-4938 ("**Assignee**"), all of the intellectual property Assignor had adopted, used and was using as of the effective date of this Assignment, including without limitation, the intellectual property represented by the United States Plant Variety Protection Certificates of Assignor identified on Schedule A hereto (collectively, the "**Property**"); and

WHEREAS, on the date hereof, Assignee has changed its name to "Harris Moran Seed Company";

NOW, THEREFORE, effective by this instrument as of the close of business on June 30, 1997, and for good and valuable consideration, receipt of which is hereby acknowledged, Assignor hereby assigns to Assignee any and all right, title and interest worldwide in and to the Property and any and all recordations thereof, including, but not limited to, the use of the Property in any manner, all benefit of any and all prior use of the Property, and any and all rights to initiate claims or proceedings for past, present or future infringements of Assignor's rights, title and interest in and to the Property.

Dated: as of June 30, 1997

HARRIS MORAN SEED COMPANY

By: _____
Philip Ashcraft, President

A496570

ENDORSED
FILED
In the office of the Secretary of State
of the State of California

JUN 30 1997

BILL JONES, Secretary of State

CERTIFICATE OF AMENDMENT

OF THE

ARTICLES OF INCORPORATION

OF

FERRY-MORSE SEED COMPANY (CALIFORNIA)

(a California corporation)

To the Secretary of State
State of California

Pursuant to the provisions of the General Corporation Law of the State of California, the undersigned officers of FERRY-MORSE SEED COMPANY (CALIFORNIA), a California corporation (the "**Corporation**"), do hereby certify as follows:

1. The name of the Corporation is Ferry-Morse Seed Company (California).

2. Article One of the Corporation's Articles of Incorporation, which relates to the name of the Corporation, is hereby amended in its entirety to read as follows:

One. The name of this Corporation is:
HARRIS MORAN SEED COMPANY.

3. The amendment herein provided for has been approved by the Corporation's Board of Directors.

4. The amendment herein provided for was approved by the written consent of the Corporation's sole shareholder in accordance with the provisions of Section 902 of the California General Corporation Law. The total number of outstanding shares of the corporation is 5,000.

IN WITNESS WHEREOF, each of the undersigned does hereby declare under the penalty of perjury that he or she signed the foregoing Certificate of Amendment as of June 30,

1997, in the Town of Modesto, State of California, in the official capacity set forth beneath his or her signature and that the statements set forth in this certificate are true of his or her own knowledge.

Yves Queste, President

Helen Andritsakis, Secretary

A493976

State of California

SECRETARY OF STATE

OFFICE OF THE SECRETARY OF STATE

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I, *BILL JONES*, Secretary of State of the State of California, hereby certify:

That the attached transcript has been compared with the record on file in this office, of which it purports to be a copy, and that it is full, true and correct.

IN WITNESS WHEREOF, I execute this certificate and affix the Great Seal of the State of California this

JUN 3 0 1997

THE GREAT SEAL OF THE STATE OF CALIFORNIA
EUREKA
CALIFORNIA

Bill Jones

Secretary of State

SEC/STATE FORM CE-107 (REV. 4/97)

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